

Appendix A

Consideration of clause 228(2) factors and matters of national environmental significance

Factor	Impact
<p>c. Any environmental impact on the ecosystems of the locality?</p> <p>The proposal would involve the clearing or disturbance of about 3.20 hectares of existing remnant native vegetation in varying degrees of condition and about 1.20 hectares of cleared and highly modified habitats. Impacts to threatened ecological communities are limited to about 0.86 hectares of Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland in the South Eastern Highlands, Sydney Basin, South East Corner and NSW South Western Slopes Bioregions. These are listed as Endangered under the TSC Act (Map Unit 5) (refer to Section 6.1).</p> <p>Vegetation removed would include the clearing of about 2.5 hectares of habitat in grassy woodland and 0.6 hectares of sheltered dry sclerophyll forest, and 0.1 hectares of riparian forest along River Lett. These habitats provide foraging habitat for a wide diversity of fauna species.</p> <p>Overall, impacts to flora and fauna during construction are not considered to be substantial with the implementation of the proposed safeguards (refer to Section 6.1.4).</p> <p>The proposal would have some minor negative impacts on flora and fauna during operation. These would include the permanent removal of foraging and breeding habitat (as a result of construction), the potential spread of weeds, the risk of vehicles striking fauna crossing the alignment and indirect noise impacts on fauna whose habitat is near the proposal.</p>	<p>Short-term, minor, negative.</p> <p>Long-term, minor, negative.</p>
<p>d. Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</p> <p>During construction, the proposal would have the potential to reduce the existing aesthetic quality of the Hartley Valley area. This would be due to construction impacts including dust and noise generation, visual impacts and increased traffic movements, including increased heavy vehicle movements. These impacts would be minimised as far as practicable through the implementation of a range of safeguards outlined in Section 7.2.</p> <p>During operation, the proposal would result in a minor reduction to the overall aesthetic quality of the Hartley Valley area due to the removal of some existing vegetation (during construction) and the alteration of the local landscape through construction of new road features (including cut and fill areas). A range of urban design safeguards to reduce visual impacts would be implemented and have been outlined in Section 6.6.4.</p> <p>It is considered that the overall amenity of Hartley Valley area would not be substantially reduced as a result of the operation of the proposal, however the locality would be impacted in a minor way due to the required clearance of vegetation next to the road.</p> <p>Additionally, no recreational or scientific qualities of the Hartley Valley area are anticipated to be impacted during the construction or operation of the proposal.</p>	<p>Short-term, minor, negative.</p> <p>Long-term, minor, negative.</p>

Factor	Impact
<p>e. Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</p> <p>The proposal passes through known heritage sites including the Little Hartley draft heritage conservation area and Hartley Historic Site. However, no direct impacts to known heritage items are expected as a result of construction or operation of the proposal. Construction impacts would be associated with minor changes to the landform and existing infrastructure next to known heritage sites. In addition, potential indirect visual impacts may occur as a result of the proposal, associated with the installation of safety fencing, earthworks and retaining walls within the views from heritage items.</p> <p>The impacts associated with the proposal would be mitigated through the implementation of safeguards outlined in Section 6.2.4.</p>	<p>Long-term, minor, negative.</p>
<p>f. Any impact on the habitat of protected fauna (within the meaning of the <i>National Parks and Wildlife Act 1974</i>)?</p> <p>The proposal would require the removal of about 4.40 hectares of potential native vegetation and fauna habitat. Impacts to threatened ecological communities are limited to about 0.86 hectares of vegetation. Nineteen fauna species are highly likely to occur in the study area, while five migratory species are moderately likely to occur within the study area.</p> <p>Biodiversity surveys carried out within and outside of the study areas confirmed the presence of four threatened birds and one threatened mammal. Significance assessments for these species indicated that the proposal was not likely to cause a significant impact on the threatened ecological community within the study area (Map Unit 5) or any of the species identified to have a moderate or high likelihood of occurring in the study area.</p> <p>Field investigations found no evidence to suggest that an area of important habitat for migratory species exists, or that the study area is occupied by an ecologically significant proportion of the populations of these migratory species.</p>	<p>Long-term, minor, negative.</p>
<p>g. Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>The proposal is unlikely to further endanger any species of flora or fauna due to the limited extent of vegetation proposed to be removed.</p>	<p>Long-term, minor, negative.</p>
<p>h. Any long-term effects on the environment?</p> <p>Minor negative long-term impacts are expected for visual impacts due to the minor modification of the surrounding landscape and provision of new visual elements including retaining walls and earthworks. However long-term effects on the environment would be minimised through the implementation of safeguards outlined in Section 6.6.4.</p> <p>The proposal would also have an overall minor negative long-term impact on the existing environment through the permanent clearance of up to 4.40 hectares of vegetation, including about 3.20 hectares of existing native vegetation.</p>	<p>Long-term, minor, negative.</p>

Factor	Impact
<p>i. Any degradation of the quality of the environment?</p> <p>The proposal would require the removal of vegetation for the construction of the safety upgrade. The site would be rehabilitated as far as practicable after construction. This would reduce the risk of long-term degradation to the environment. Safeguards would be implemented during construction including measures to prevent the spread of noxious weeds. This would have the potential to degrade the quality of the environment in the long-term (refer to Section 6.1.4).</p> <p>A number of potential water and visual impacts could degrade the quality of the environment. Water quality could be reduced as a result of pollutants such as sediment, soil nutrients, waste, and spilt fuels and chemicals entering drainage lines and creeks. Increases to impervious areas as a result of the proposal may result in minor impacts to downstream peak flow rates and new outlets, however, these are localised and would be addressed through appropriate safeguards (refer to Section 6.3).</p> <p>Landscape and visual amenity would be impacted from new earthworks and retaining walls. Revegetation and landscaping of the proposal would occur using indigenous species wherever possible. A landscape and visual impact strategy has been developed for the proposal to mitigate visual impacts and to ensure that the proposal is sensitive to the receiving environment. No additional degradation of the quality of the environment is anticipated to occur during the operation of the proposal.</p> <p>Mitigation measures would be implemented to reduce impacts to water quality, hydrology and soils. Air quality, noise and traffic impacts would result from the construction phase. These impacts would be minimised through the implementation of safeguards outlined in Section 7.2.</p>	<p>Short-term, minor, negative.</p>
<p>j. Any risk to the safety of the environment?</p> <p>There is potential for road safety to be decreased during construction due to the need for work on the existing highway and existing side roads. Traffic management safeguards including the preparation of a Traffic Management Plan, would address safety risks (refer to Section 6.9.3).</p> <p>Environmental management plans and work health and safety plans would be implemented to minimise any safety risk during construction of the proposal.</p> <p>The proposal would result in an improvement to road safety from the construction of the upgrade and improvement of existing intersections along the proposal. This would reduce the potential for road crashes.</p>	<p>Short-term, minor, negative.</p> <p>Long-term, minor, positive.</p>
<p>k. Any reduction in the range of beneficial uses of the environment?</p> <p>The proposal would result in traffic impacts during construction which would include an increase in the volume of heavy vehicles, interruption of traffic flow and temporary change in speed limit. These traffic impacts would reduce the beneficial use of the Great Western Highway during the construction.</p> <p>In the long-term, the proposal would be consistent with future uses and there would be no reduction in the range of beneficial uses of the environment that do not currently exist.</p>	<p>Short-term, minor, negative.</p> <p>Nil long term impacts.</p>

Factor	Impact
<p>l. Any pollution of the environment?</p> <p>The proposal would have the potential to result in some minor, negative short-term water pollution risks of impacts resulting from sediments, soil nutrients, waste, and spilt fuels and chemicals. Management of water quality impacts would be carried out in accordance with the safeguards outlined in Section 6.4.5.</p> <p>Short-term noise and air quality impacts are expected during the construction phase of the proposal from plant and machinery and the generation of dust during construction. Management of noise and air quality impacts would be carried out in accordance with the safeguards outlined in Section 6.5.3 and Section 6.12.4 respectively.</p> <p>The operation of the proposal is unlikely to substantially alter the air quality from the existing conditions. Some minor long-term benefits to air quality could occur through reduced vehicle emissions generated by an improved road alignment.</p>	<p>Short-term, minor, negative.</p> <p>Long-term, minor, positive.</p>
<p>m. Any environmental problems associated with the disposal of waste?</p> <p>Contaminated waste is not anticipated to be generated or uncovered as a result of the proposal. Stockpile and compound sites would be managed in a way that minimises waste on site and manages excess materials.</p> <p>Waste generated by the proposal would be recycled or reused as much as practicable. All materials that cannot be reused or recycled would be disposed of appropriately (refer to Section 6.14).</p>	<p>Nil impact.</p>
<p>n. Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply?</p> <p>The proposal would require resources such as concrete and asphalt, which are common construction materials. The proposal would not create any significant demand on these resources.</p> <p>All other required resources for the proposal are considered to be readily available and have not been identified as being short supply (refer to Section 6.14).</p>	<p>Nil impact.</p>
<p>o. Any cumulative environmental effect with other existing or likely future activities?</p> <p>The proposal forms part of enhanced safety work package between Lithgow and Mount Victoria and is part of the wider upgrade program for the Great Western Highway between Katoomba and Lithgow. The construction periods for the Forty Bends, Fernhill, River Lett Hill, Hartley Valley and Mount Victoria Great Western Highway Safety Upgrade proposals are expected to overlap over a period of one year. A number of cumulative impacts are expected as a result of simultaneous construction programs and would include impacts on traffic, noise, vibration, air quality and biodiversity. These are, however, expected to be temporary and would be managed through construction work staging and the implementation of project specific controls.</p> <p>In the long term, the cumulative environmental effects would be positive. These would include an improvement in the safety of the Great Western Highway between Katoomba and Lithgow, improvement in traffic conditions, reduction in travel times, an increase in employment levels, visitor numbers and as well as</p>	<p>Short-term, minor, negative.</p> <p>Long-term, major, positive.</p>

Factor	Impact
improved access to employment opportunities and community services and facilities.	
<p>p. Any impact on coastal processes and coastal hazards, including those under projected climate change conditions?</p> <p>The proposal is not located within a coastal area and would not result in any impact on coastal processes and coastal hazards.</p>	Nil impact.

Matters of National Environmental Significance

Under the environmental assessment provisions of the *Environment Protection and Biodiversity Conservation Act 1999*, the following matters of national environmental significance and impacts on Commonwealth land are required to be considered to assist in determining whether the proposal should be referred to the Australian Government Department of the Environment.

Factor	Impact
<p>a. Any impact on a World Heritage property?</p> <p>The proposal would not have any impact on a World Heritage property. The closest World Heritage property to the proposal is the Greater Blue Mountains National Park, located about three kilometres to the east of the proposal.</p>	Nil impact.
<p>b. Any impact on a National Heritage place?</p> <p>The proposal would not have any impact on a National Heritage place. The closest National Heritage place to the proposal is the Greater Blue Mountains National Park, located about 11 kilometres to the east of the proposal.</p> <p>Hartley Valley has also been nominated for inclusion as a National Heritage place, however the status for this nomination is yet to be determined by the Minister for the Department of the Environment.</p>	Nil impact.
<p>c. Any impact on a wetland of international importance?</p> <p>The proposal would not have any impact on a wetland of international importance. There are no wetlands of international importance within 10 kilometres of the proposal site.</p>	Nil impact.
<p>d. Any impact on a listed threatened species or communities?</p> <p>The biodiversity assessment identified the proposal would impact on about 0.86 hectares of Tablelands Snow Gum, Black Sallee, Candlebark and Ribbon Gum Grassy Woodland vegetation community listed under the TSC Act. In addition, the Narrow-leaved Black Peppermint (<i>Eucalyptus nicholii</i>) listed as Endangered under the TSC Act and Vulnerable under the EPBC Act may be affected. However, individuals of this species are located outside of the proposed footprint and would be avoided during construction. Removal of habitat may also affect other threatened fauna, however, tests of significance found no significant impact to these species as a result of the proposal. Mitigation measures to manage impacts to these species are summarised in Section 6.1.4.</p>	Short-term, negative.
<p>e. Any impacts on listed migratory species?</p> <p>Thirteen migratory fauna species were identified as potentially occurring within 10 kilometres of the proposal. While eight species have either a low or unlikely potential to occur, five species have a moderate potential to occur. However, field investigations found no evidence to suggest that an area of important habitat for migratory species exists, or that the study area is occupied by an ecologically significant proportion of the populations of these migratory species. No migratory species would be affected by the proposal.</p>	Nil.
<p>f. Any impact on a Commonwealth marine area?</p> <p>The proposal would not have any impact on a Commonwealth marine area. No Commonwealth marine areas occur within 10 kilometres of the proposal.</p>	Nil impact.

Factor	Impact
<p>g. Does the proposal involve a nuclear action (including uranium mining)? The proposal does not involve a nuclear action.</p>	<p>Nil impact.</p>
<p>h. Additionally, any impact (direct or indirect) on Commonwealth land? The proposal would not impact on Commonwealth land.</p>	<p>Nil impact.</p>